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A STATEMENT OF THE CLAIMS
OF
CHARLES T. JACKSON, M. D.
TO
THE DISCOVERY OF THE APPLICABILITY
OF
SULPHURIC ETHER
TO THE
PREVENTION OF PAIN IN SURGICAL OPERATIONS.

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P R E F A C E.

THIS pamphlet is intended to present to the public a general statement of the most important facts relating to the history of the discovery by Dr. Charles T. Jackson, of certain peculiar effects produced upon the system by Sulphuric Ether; and of the discovery of the applicability of this substance to surgical operations, including an account of facts relating to the introduction of this new preventive of pain into actual practice.

The history of the discovery has been derived from Dr. Jackson himself. I have before me the testimony of witnesses of unimpeachable character, and I have taken their statements as the sole basis of my remarks respecting the presentation to the world, by Dr. Jackson, of his inestimable gift.

Some slight account may be necessary of the experiments and thoughts which led Dr. Jackson to this discovery. The prescription of the physician may have cost him but a moment's reflection, but some pages may be required for even a slight explanation of the principles upon which this pre-

scription has been made, and for the mere enumeration of the kinds of knowledge involved in the selection of his remedy. An apology may be necessary to persons at a distance for the minuteness of some of the details in this paper, and for discussing propositions which would seem to be self-evident, but not so to those who know the history of the matter since Dr. Jackson's promulgation of his discovery. Mr. W. T. G. Morton also claims the credit of this discovery, and frequent mention is necessarily made of his want of the medical information required for understanding the operation of Sulphuric Ether upon the system. It will be seen that upon this point there is no opinion given, that is not entirely founded upon Mr. Morton's own expressions, as proved by testimony contained in this pamphlet; and no reflection is intended to be cast upon his more immediate qualifications as a dentist.

The character of the gentlemen whose testimony is contained in this pamphlet is of the highest respectability, and their evidence is so clear and decisive as to render it wholly unnecessary, for the establishment of Dr. Jackson's claims, to reply in detail to the numerous mistatements found in the various publications that have been issued by Mr. Morton, through his agent.

Boston, May 20, 1847.

STATEMENT.

Two distinct claims are to be considered. The first is, the discovery by Dr. Jackson, that by sulphuric ether, a state of general unconsciousness may be safely and speedily induced, of brief duration, and followed by rapid and entire recovery from its effects. The question is not, whether he discovered the induction of a state of insensibility dangerous, and in other respects objectionable; the insensibility produced by ether was so considered by physiologists before Dr. Jackson made his observations; but whether he discovered that this opinion is erroneous, and that a state of unconsciousness may be produced, characterized by the qualities above described, and especially its safety.

The second claim is, that Dr. Jackson made the discovery of the applicability of sulphuric ether for the prevention of pain in surgical operations; and that he caused the application of it to be made in such a manner, and under such circumstances, that the credit is due to him of having *made the application*, in the high and true sense of the term. The second claim is the real question at issue between Dr. Jackson and Mr. Morton.

Did Dr. Jackson discover the applicability of sulphuric ether, and did he feel so certain of the safety of its use, as to prescribe it confidently, and to stand alone responsible

for the results, provided his instructions were implicitly obeyed? Did Dr. Jackson give instructions to Mr. Morton, in the same way as an accomplished physician would give a new and bold prescription to a nurse, or other person, not possessed of general medical knowledge? Did Mr. Morton apply this preventive of pain exactly according to Dr. Jackson's instructions? And, relying solely upon his authority, was Mr. Morton irresponsible, like the nurse, for the consequences that might ensue? And, unacquainted with the properties and newly discovered effects of sulphuric ether, any further than Dr. Jackson thought it necessary to instruct him, in order to enable him to perform the part assigned him, was he merely an agent in the practical application of Dr. Jackson's discovery? The affirmative of all these questions is susceptible of the clearest proof.

Dr. Charles T. Jackson received the degree of Doctor of Medicine at Harvard University, in 1829. He afterwards for three years pursued with diligence and enthusiasm the studies of his profession at Paris and Vienna. In his boyhood, and while attending to these studies, he gave much time to various departments of natural science, and particularly to chemistry. He commenced the practice of his profession in Boston, but for several years past has abandoned it, and has devoted himself to the pursuits of an analytical chemist and geologist. For a long time after his return from Europe, he had a strong wish to engage in original researches in physiology and chemistry, but his circumstances would not permit this indulgence; and for many years past he has been constantly and laboriously employed in the geological surveys of the States of Maine, N. Hampshire and Rhode Island, under the authority of their respective State

governments; in performing the chemical work connected with these surveys; in the survey of mines in various parts of the country, and in the chemical examination of their contents; in the various analytical work usually brought to a laboratory; often in giving short courses of lectures in Boston and other places; and recently he has received the appointment of Geological Surveyor of Mineral Lands of the United States in Michigan.

Dr. Jackson was for many years in the habit, when at work in his laboratory, of inhaling occasionally to a greater or less extent the vapor of sulphuric ether, to relieve the irritation produced by the various noxious fumes to which he was at times exposed. He knew that a long continued inhalation of it was supposed by physiologists to be dangerous, and about six years ago,—with a view of observing fully the effects of this inhalation,—he breathed the vapor for a longer time than he previously had done. In this experiment, a peculiar sleep or unconsciousness was produced; he observed that it was of short duration, attended with no unpleasant sensations, and no symptoms which seemed to him to be dangerous. In the winter of 1841–42, he inhaled sulphuric ether in order to obtain relief from the very unpleasant sensations, caused by an accidental inhalation of chlorine gas. He thought, that in this case some relief might possibly arise from the union of the hydrogen of the ether with the chlorine, forming hydrochloric acid; which acid would be less irritating than the uncombined chlorine; and he inhaled ammonia, to neutralize the acid, and form muriate of ammonia, less irritating still. He at first breathed the ether without producing unconsciousness, but derived from it some relief. Afterwards, still suffering

from the chlorine, he continued the experiment to such an extent as to produce complete general insensibility. Full relief from the suffering was experienced *before* he became unconscious, and it continued for a short time *after* the insensibility had passed away. When the system had become wholly free from the influence of the ether, the painful sensations returned, although with somewhat diminished violence.

Dr. Jackson also prescribed the ether to one of his students, Dr. William F. Channing, who was suffering in the same manner from chlorine gas. The effect of the chlorine was to produce a spasmodic sensation, and, to quote Dr. Channing's own words, "distress of respiration, of such a character, as to make me apprehend an immediately fatal result." He also found entire, but temporary relief from the ether. It was evident, therefore, as this perfect relief from suffering, at first experienced, so soon passed away, that there must be some other explanation of these effects, besides that founded on the possible neutralization of the chlorine by the hydrogen of the ether, and of the acid by the ammonia; because, if these combinations of chlorine and hydrogen, and of the acid and ammonia, had once been formed, they would have been permanent; and the relief, having been a result of these combinations, would have been permanent also. This was not the case, for the peculiarly unpleasant sensations from the chlorine returned, although with less violence.

The question now arises, how far is Dr. Jackson entitled to the credit of having discovered the precise character of the unconsciousness induced by inhaling the vapor of sulphuric ether, and especially the important fact of the safety

of the inhalation? Before his observations, a state of complete insensibility from this cause, was considered by the best authorities, as one of greater or less danger; and it had been known to produce fatal results. Young persons had breathed this vapor to the extent of producing unconsciousness, and in some cases without injury. In Philadelphia it was breathed by some lads, who poured the ether into bladders, which they dipped into hot water, in order to vaporize it; they then inhaled the vapor thus formed; Dr. Mitchell states that, in some instances, it proved fatal.* These facts give some idea of the state of knowledge upon the subject, before Dr. Jackson made sulphuric ether an object of investigation. Acquainted with the opinions of others, and also with the fact, that this vapor had in various instances been breathed without serious or unpleasant consequences, and having performed bold experiments upon himself, he, at last, in opposition to the opinion of other physiologists, arrived at the conclusion, that the inhalation of a proper mixture of sulphuric ether and atmospheric air is perfectly safe; and that the state of unconsciousness thereby induced, has all the various other characters which have been described, and which later experiments have fully established. That he had perfect and unwavering confidence in the correctness of his opinion, will be proved in the sequel. If we contrast the state of general information and belief concerning the effects of sulphuric ether previous to Dr. Jackson's investigations, with that which now exists, and if we recollect that this change is due to him, it would seem but just to admit his claim to have discovered, in the insen-

* Vide Beck's Medical Jurisprudence, vol. ii. p. 668.

sibility induced by the sulphuric ether, qualities of inestimable value.

Dr. Jackson conceived the idea, that the pain attending surgical operations, might be prevented by inhaling the vapor of sulphuric ether to the extent of producing general unconsciousness. His conviction of the safety, with proper precautions, of inhaling it to this extent, was the first step towards the application of the ether to that purpose. The character of this unconsciousness, in other respects, was all that could be desired. Its principal features, as discovered by him, are, the short time required for its induction, its completeness, its brief duration, the rapid recovery of the patient from its effects, and a certain paralyzing influence upon the nerves of sensation. The difference is remarkable between the effects of this vapor, and those of all other substances, whose action on the system has been investigated. The ether is the only one known to produce the effects just described, and, with proper precautions, is not liable to produce any others, which would render its administration objectionable. It still remained to be ascertained, whether this unconsciousness was so perfect, that, during its continuance, no pain would be produced by wounding instruments. Dr. Jackson confidently believed that it was. Having, as the final result of his experiments and reflection, come to the conclusion, that sulphuric ether combines all the qualities requisite in a substance to be used for the prevention of pain in surgical operations, he selected it for this great purpose.

Dr. Jackson was now prepared to advise without reserve the performance of an operation upon a patient under the influence of the ether vapor. He communicated to several

persons, and among others to Mr. Bemis, an eminent dentist, in 1842, as is proved by his statement subjoined in the Appendix, his observations and conclusions respecting the prevention of pain in surgical operations. In February, 1846, finding that Mr. Joseph Peabody, a student in his laboratory, wished to be mesmerized, that he might have two teeth extracted without pain, he dissuaded him from the attempt. He informed him that insensibility would be produced by the inhalation of sulphuric ether vapor; he advised him to breathe it, and to submit to the operation, while in the sleep induced thereby. He gave him directions for the purification of the ether; and instructions similar to those which were subsequently given to Mr. Morton, and which were found sufficient for a perfectly successful performance of the operation. All this was voluntarily done by Dr. Jackson, no advice or opinion having been solicited of him by Mr. Peabody. They conversed several times concerning this application of the ether; and Mr. Peabody intended to have the operation performed upon himself, after returning to his home in Salem; and he actually commenced the distillation of the ether for this purpose. He, at last, gave up the experiment, because his father, a scientific man, feared irritation of the lungs might ensue; because the best authorities on the subject were arrayed against the opinion of Dr. Jackson, and because he was unwilling to incur any risk for so slight an operation. Dr. Jackson declared to Mr. Peabody, that, notwithstanding the general opinion of physiologists, he felt perfectly satisfied that he would have incurred no danger.

Late in Sept. 1846, Mr. W. T. G. Morton called at the

office of Dr. Jackson, and requested the loan of an India rubber bag, for the purpose of administering atmospheric air to a patient, in order to act upon her imagination, and to induce her to permit him to extract a tooth. He was dissuaded from the attempt by Dr. Jackson. There was also some conversation concerning nitrous oxide. Their conversation upon the above named subjects lasted for some time. It was finished, and no request had been made by Mr. Morton to Dr. Jackson to suggest to him any process, by which teeth might be extracted without pain. Mr. Morton had left the apparatus room, in which most of this conversation had occurred; he went into the office on his way to the street, when he was followed by Dr. Jackson, and stopped by him. Dr. Jackson then informed Mr. Morton, that he could impart to him a means of producing a general insensibility, during which, he was confident, surgical operations might be performed without pain. He communicated to Mr. Morton all that it was necessary he should know, for the performance of this experiment. He informed him, that the substance to be used was the vapor of sulphuric ether. He gave him directions concerning the degree of purity requisite in the ether to be used. He assured him of the certainty of the induction of the insensibility, and of the safety of the operation, if properly performed. He gave instructions in the most minute detail; so that nothing whatever was left for Mr. Morton to devise in any part of the process, for the successful performance of the operation. Dr. Jackson *distinctly* assumed the responsibility of the application. It is evident from Mr. Morton's inquiry, respecting sulphuric ether, "is it a gas?" that he was entirely ignorant of its appearance and quali-

ties. He was incredulous as to the results, which Dr. Jackson assured him would be produced, and required *repeated* assurances from him. Relying on Dr. Jackson's knowledge and authority, Mr. Morton proceeded to his rooms to make the trial.

Thus it appears that Dr. Jackson instructed Mr. Morton upon every point relating to the new application of ether. He did not, to quote an expression often used, suggest merely to Mr. Morton this application for him to consider, whether it was a fit one among others of which to make trial; because Mr. Morton was not qualified to form any judgment about the matter. Dr. Jackson took upon himself the sole responsibility of the act, and would alone have been morally responsible, had the life of the patient been lost.

The ether was administered by Mr. Morton in exact conformity to the instructions of Dr. Jackson. He had procured the ether at the place recommended, and of the purity prescribed by him; he poured some of it upon a handkerchief, and held it close to the mouth of the patient. Insensibility soon ensued, the handkerchief was removed, and the tooth was extracted. The recovery from the insensibility was rapid and entire, and the patient declared, that he had felt no pain from the extraction of the tooth; and no unpleasant sensations during any part of the process. The instructions of Dr. Jackson had been followed in the most minute particular; and his assurances had been in every respect fulfilled.

The next day Mr. Morton called at the office of Dr. Jackson, and informed him of this successful experiment with the ether. Dr. Jackson expressed no surprise, as he expected this

result. He immediately told Mr. Morton, that leave must be obtained of one of the surgeons of the Massachusetts General Hospital to administer the vapor to some patient, about to undergo a capital operation. Mr. Morton objected to this proceeding, that the ether would be detected by its odor; and it was not until after much urging by Dr. Jackson, that he consented to it. He went to Dr. Warren, who soon performed the operation of the removal of a tumor from the face. The pain was less than is usual in such an operation. The next operation was the removal of a tumor from the arm by Dr. George Hayward. This was perfectly successful, the patient experiencing no painful sensation during the operation.

Dr. Jackson and his friends have been accused of not giving to Mr. Morton the credit due to him, for the part he performed in the early experiments made with the ether. All the part that Mr. Morton could or did perform, was, to obey implicitly the instructions of Dr. Jackson. It has been argued, that had Dr. Jackson gone with Mr. Morton, and administered the ether himself, he might then claim not only to have discovered its applicability, but to have made the application of it himself. The term application has two very different meanings. The man who discovers the applicability of certain principles, whether original with himself, or previously known, to a new purpose, and contrives an instrument founded on them,—and also the man who discovers the applicability of any substance to a new purpose, and prescribes the manner of using it for that purpose, make application of principles in the higher sense of the term;—while the man who constructs the instrument, and the man who first uses the substance in the manner pre-

scribed, make an application of principles in a different and far lower sense. Sir H. Davy discovered certain principles and their applicability to the construction of the safety lamp invented by him ; a chemist discovered the applicability of chlorine to the bleaching of cotton cloth, and prescribed the manner of using it ; and Dr. Jackson discovered the laws of the general unconsciousness producible by sulphuric ether, and prescribed the manner of its induction. All these persons made application of principles in the higher sense of the term ;—while the mechanic who constructed the lamp, the person who first used it in an explosive atmosphere, the workman who first used chlorine for bleaching, and Mr. Morton, who first successfully used the ether in a dental operation, made application of those principles in the lower sense.

Mr. Morton, by acting under the authority of an educated physician and man of high scientific reputation, was shielded from all responsibility, but that assumed by him as Dr. Jackson's agent. There was no demand for that moral courage which some have ascribed to him. Let the object of Mr. Morton's visit to Dr. Jackson be remembered, when the peculiar properties of sulphuric ether, were first made known to him. His purpose was, to deceive a patient in a dental operation, by acting on the imagination. Dr. Jackson dissuaded him from it, and brought forward a long cherished idea of his own, which he had previously communicated to several persons,—his plan for the prevention of pain in surgical operations. He supposed that he might safely entrust to Mr. Morton the few and simple directions necessary for carrying the plan into effect, without his personal superintendence. In obeying these directions, Mr. Morton as-

sumed only the responsibility of the nurse who administers a new and bold prescription of a physician. The responsibility of the operation rested with Dr. Jackson, as much as if he had personally administered the ether ; the maxim, "*qui facit per alium, facit per se,*" is strictly applicable in this case. Dr. Jackson has not, by his mere absence during the execution of his directions, forfeited any portion of the credit that would otherwise have been his due.

Mr. Morton, from his want of medical knowledge, *could* assume only a very subordinate responsibility. Mr. Barnes testifies that, some time after the earliest experiments with the ether, Mr. Morton showed him an apparatus for administering it, with no provision for the admission of air ; and, although told by Mr. Barnes that the admission of the air was indispensable, he gave proof, as late as December last, that he was not aware of the danger of too great an exclusion of it. At that time, Dr. N. C. Keep, to whom we are much indebted for his valuable experiments and observations upon the best mode of using the ether, found it difficult to induce him to permit the air to pass freely through his apparatus. In order to have been qualified to assume any other than a subordinate responsibility, he should have had a certain amount of medical and physiological information ; he should have been competent, from a knowledge of the nature of respiration, and of its effects upon the brain and the whole system, to form an opinion of the safety and expediency of the application, to weigh the facts and evidence presented by Dr. Jackson, and to understand the precautions necessary for success. Had he then personally made the application, the higher kind of responsibility would have rested in part with him, and the credit of the

application in the higher sense of the term, would have been in part his also. The credit to which he is really entitled, is that of faithfully performing, according to his instructions, a mechanical part in the first application of sulphuric ether in dental surgery. Certainly no peculiar credit is due to him for being, after long hesitation, the unwilling bearer of Dr. Jackson's message to the surgeons of the Hospital, asking them to try the efficacy of sulphuric ether for the prevention of pain in surgical operations.

It is proper, in this connection, to bear testimony to the readiness and philosophical spirit, with which the surgeons of the Massachusetts General Hospital subjected the new discovery to the test of experiment, and zealously advocated its introduction into the practice of surgery.

It would hardly seem necessary, after the previous relation of facts, to state, that from the time of the first experiments with the ether, Dr. Jackson's confidence in its permanent adoption in surgical practice, has increased with every additional report of its successful application. He knew that it would be unsafe in the hands of incompetent persons, and frequently expressed this opinion ; but there is positive testimony, that he has continued unfaltering in his belief in the safety and ultimate success of the application. It is well known to Dr. Jackson's friends, that he felt the greatest anxiety, lest injurious effects, and even loss of life, might ensue from a careless use of the new preventive. Death, in one or two cases in the earlier trials, might have deterred surgeons and dentists from its further use, and an invaluable blessing might thus have been, for a time, lost to the world. Dr. Jackson, therefore, refused, whenever applied to, to warrant the safety of the application of the ether,

unless it should be administered with proper precautions. Words used by him, expressive of his anxiety upon this point, have been misunderstood, distorted, or misrepresented, so as to lead some persons to believe that he wanted confidence in the new application, and repudiated the whole matter. Ample evidence of the groundlessness of this imputation, is furnished in the Appendix. The strength of Dr. Jackson's conviction of its safety and efficacy, at the time of the first application of the vapor of the ether, is fully proved by the confidence with which he caused its introduction into practice ; and it is impossible that he could have for a moment doubted, while evidence proving the truth of this conviction, was daily accumulating.

It is asserted, that Mr. Morton had a strong desire to discover some means of preventing pain in surgical operations, and that this entitles him to share the honor of Dr. Jackson's discovery, or, in the highest sense of the word, of making the application of it. It is unnecessary to dwell on this point. It is well known, that surgeons and others have, for centuries, most earnestly desired such a discovery,—and that they have made experiments in order to effect it. The mesmerisers have, in a few instances, been successful ; and the medical profession have hoped, against their belief, that they would succeed better ; Sir H. Davy suggested the trial of nitrous oxide, in small operations, and Mr. Wells has applied it for this purpose. The whole world of surgeons have been ready to try any rational plan for accomplishing the object ; and there is no peculiar merit due to an individual for being the first person, to whom such a plan is presented, and the first to use it ; especially when he is not responsible for its safety.

Several publications have been issued by Mr. Morton's agent ; and among them a pamphlet, evidently intended to present Mr. Morton's case to the public. The only point requiring notice in any of them, is, his alleged claim to the discovery made by Dr. Jackson,—because, so far as appears from the testimony adduced by him, he experimented unsuccessfully with chloric ether, previous to receiving from Dr. Jackson his prescription of the sulphuric ether. Mr. Morton adduces the evidence of four witnesses. They state that Mr. Morton experimented with “ether” in the summer of 1846. Neither of them, in testimony occupying several pages, once mentions *sulphuric* ether. But one of them gives information concerning the substance used. He observes respecting a demijohn of ether purchased for Mr. Morton's experiments, that it was “chloric of ether.” They do not state that any tooth was extracted from a patient under its influence, or that any promising result was obtained.

An impression, unfavorable to Dr. Jackson's just claims, has arisen in some minds, in consequence of his signing a petition for letters patent, in which Mr. Morton is represented as a joint discoverer with him. It is well known to Dr. Jackson's friends, that he always regarded the position of one engaged in scientific pursuits as a profession, as an elevated one ; and deemed it a sort of impropriety, to procure letters patent for the practical application of scientific discoveries. He himself never would have procured one merely for his own pecuniary benefit, in a case so important to the interests of humanity.

The facts are these. Mr. Morton applied to a solicitor of patents to take one out for himself. The opinion of the

solicitor was, that the patent laws would permit Mr. Morton to take out a patent on account of the part he had in the new application ; and he further stated to Dr. Jackson, that Mr. Morton would assuredly take out one in his own name, and he urgently advised him to unite with Mr Morton in applying for a patent to be issued in Mr. Morton's name, in order that his own rights to the discovery, might be recognized in the first paper relating to the new application of the ether, filed at the patent office. He observed, if Mr. Morton should take out a patent himself, and thus procure a kind of recognition at the patent office, of his having been the discoverer, he might afterwards refer to this recognition in proof of it. The solicitor remarked to Dr. Jackson that, should he take out the patent with Mr. Morton, he might make over to him his own share of it ; and that he would not then be a partner with him in holding it. As Dr. Jackson had great confidence in the solicitor, both as a friend and in his professional capacity, he after long hesitation consented to the plan proposed. There is no doubt whatever in the minds of Dr. Jackson's friends, that he consented to it, for the sake of preventing Mr. Morton from holding a legal instrument in his possession, with his own name alone in it as the discoverer. Dr. Jackson was surprised, upon reading the petition presented for his signature, that Mr. Morton was fully recognized in it as a joint discoverer with himself ; but he had agreed to the arrangement, and he supposed that the expression referred to, was a necessary part of the technical wording of the paper. If, for the subordinate part performed by Mr. Morton, the patent laws were such as to permit him to join with Dr. Jackson in taking out a patent, the wording

of the instrument referred to, could not have been different. The patent has always been the exclusive property of Mr. Morton ; he gave to Dr. Jackson a bond, promising him a certain per centage of the profits that might be derived from it. Dr. Jackson has received no pecuniary advantage from this patent, and he has determined that he never will receive any. He has destroyed the bond. Dr. Jackson is now satisfied, that a simple relation of the facts alone would have established his claims to his discoveries. He has long regretted that he departed from the course, which in the case of a discovery like the present, his elevated sense of his duty as a scientific man, would have compelled him to follow,—to give his discovery without restriction to the world.

It is necessary to take some notice of the claim of Mr. Horace Wells, of Hartford, Connecticut, to the discovery of the applicability of sulphuric ether for the prevention of pain in surgical operations. There is a singular vagueness in his claims, as stated by him in various parts of a pamphlet published by him ; they appear to come under three heads. The first is “priority of discovery of the application of gas or vapor for the performance of surgical operations.” The preface contains this claim, and this only. E. E. Marcy, M.D., whom Mr. Wells repeatedly speaks of, as his adviser on this subject, distinctly defines this to be Mr. Wells’s claim. His words are, “the man who first discovered the fact, that the inhalation of a gaseous substance would render the body insensible to pain during surgical operations, should be entitled to all the credit or emolument which may ensue from the use of any substance of this nature.” The absurdity of including in his claim all gaseous substances what-

ever, because he observed in one of them properties which he supposed valuable, is too obvious to require further notice.

The second claim, which seems to be comprehended in the first, is, that of the applicability of nitrous oxide, and of all stimulating gases or vapors, for the prevention of pain in surgical operations. Two questions relating to this claim suggest themselves. Has the application of nitrous oxide been so successful and unobjectionable, as to entitle him to the credit of making an important discovery? And was the idea of using nitrous oxide original with Mr. Wells? Several physicians and surgeons of Hartford, certify to the credibility of Mr. Wells's witnesses, who testify, that about two and a half years ago, they had teeth extracted without pain, while under the influence of nitrous oxide. Although so much time has elapsed since Mr. Wells's experiments, he presents no evidence of its adoption into general surgical practice, even in that flourishing city. It required little more than the same number of months, to diffuse the knowledge and application of Dr. Jackson's discovery throughout the civilized world. The inference is irresistible, either that the application of nitrous oxide was not generally successful, or that there are insuperable objections to the use of this substance in surgical practice. Some opinion concerning its fitness for surgical use, may be drawn from the fact, that most professors of chemistry have long ceased to administer it in their lectures, on account of the violent, and, sometimes, alarming effects produced by it. Mr. Wells is not the first person, who conceived the idea of applying this gas for the prevention of pain in surgical operations. An attempt was made, without success, four or five years ago, by some students at Cambridge, to perform the opera-

tion of extracting teeth upon one or two of their companions, who were under the influence of nitrous oxide. In one instance, the subject, while under the influence of the gas, made his escape, and was with difficulty caught. A peculiarly pugnacious state of feeling had been induced ; certainly not the condition in which to undergo a delicate surgical operation. The fact, that others have attempted to use this gas for surgical purposes, would not, however, affect Mr. Wells's claim to the honor of making a great discovery, had he ascertained and prescribed the means of rendering the use of nitrous oxide safe, efficacious, and unobjectionable.

The third claim of Mr. Wells is, that he discovered the applicability of sulphuric ether in surgical operations. He founds this claim upon the fact of his having applied nitrous oxide in a number of dental operations ; and on having inhaled the ether, and caused it to be used in a *single* operation. This operation was performed two years after Dr. Jackson recommended the use of sulphuric ether to Mr. Bemis. Mr. Wells founds a claim to the discovery of the applicability of one substance to an important purpose, upon experiments made with a different substance, without proving that the effects of the two are identical. He states in one paragraph that he knew that their effects were identical ; while it is clear, from the language in another, that he and his adviser, after their experiment with sulphuric ether, did not so consider them. The language referred to, is as follows : “ Let it be remembered, however, that at this time (November, 1844), while we had the subject under consideration, a surgical operation was performed at Dr. Marcy's office, under the influence of sulphuric ether, as is proved

by affidavit. The Doctor then advised me by all means to continue the use of the nitrous oxide." Mr. Wells adopted the opinion, and followed the advice of Dr. Marcy. He does not state that the experiment was successful; the inference is plain, that it was not so. If Mr. Wells had had any claim before the performance of this experiment, he certainly has none now; for while he makes the preposterous claim of the discovery of the applicability of all stimulating gases or vapors, he virtually excepts sulphuric ether. He tried an experiment with it, and instead of discovering that it *was*, he seems to have discovered, to his own satisfaction, that it was *not* applicable to that purpose; and he abandoned it, and experimented with it no more. Mr. Wells's experiments have produced no results out of his own city; they certainly had no effect in introducing the use of sulphuric ether into the practice of surgery.

Mr. Wells's allegation, that Dr. Jackson is indebted to him for the idea of using sulphuric ether in surgery, is proved to be false by a comparison of dates. He claims to have imparted it to him "in the fall of 1844." Dr. Jackson saw Mr. Wells but once during that period; and then at an interview of only a moment's duration. Dr. Jackson states positively, that sulphuric ether was not mentioned at all during this interview; and Mr. Wells does not state that it was; although the reader, from a careless perusal of the vague statements in his pamphlet, might infer that it was mentioned. Any argument upon this point is rendered unnecessary by the fact,—that Dr. Jackson recommended to Mr. Bemis sulphuric ether for the prevention of pain in surgical operations, in September, 1842.

Various censures, originating in an imperfect knowl-

edge of facts, have been cast upon Dr. Jackson, to which a sufficient reply is furnished by the evidence now made public. There is one, however, which seems to require a slight notice. He has been censured for so long deferring to communicate his discovery to the world; and it has been inferred, that he could not have believed in its applicability in surgical operations. The testimony of Messrs. Peabody, Bemis, and Channing, is fully sufficient to set aside this inference. It was more than a quarter of a century after Jenner first heard the milk maid express her belief in the protective influence of cow-pox, that he vaccinated the first patient, during which period he was much engaged in the investigation of the subject; and it was not until after the further lapse of more than two years, and the vaccination of twenty-three persons, that he thought it proper to publish his discovery to the world. Does any one now reproach Jenner with unnecessary delay? Who will be inclined hereafter to reproach Dr. Jackson, when he reflects upon the results of his discoveries?

A thought of some interest naturally suggests itself to one, who appreciates the dignity of scientific pursuits. If this discovery had resulted from the hasty suggestion of a physician, and an experiment undertaken without careful instruction, and performed with little exercise of judgment, it might be justly regarded as a fortunate accident, reflecting little credit upon any one. The case is far different. It resulted from the observations, experiments, and inductive reasoning of a man of philosophical mind. It is the greatest boon conferred by science upon humanity during the present age.

The author has now finished a labor, in many respects ungrateful, which he was prompted to undertake by a sense of justice, and a friendship cemented by kindred tastes and pursuits and an interchange of kindly offices during several years. It can hardly be necessary to observe that he has not assailed the moral character or motives of any individuals. If what he has written shall promote the cause of truth and justice, his object will be accomplished.

LETTER FROM DR. JACKSON.

The following interesting letter respecting the experiments and observations with sulphuric ether, which Dr. Jackson made upon himself, previous to its being used at his recommendation by others, he has, at my request, furnished for publication.

BOSTON, MAY 1, 1847.

DEAR SIR,—In compliance with your request, I offer you the following account of my experiments and observations, made several years ago, on the inhalation of vapor of pure sulphuric ether. I was previously aware from the experience of others, and from my own experiments, of the kind of intoxication, which is produced by the inhalation of that vapor. It was not known at that time, however, that an insensibility could be produced by this agent, of safe and short duration. I moistened a cloth and laid it over my mouth and nostrils, and laid myself back in a rocking chair, and inhaled the vapor, noticing its effects on the system. The first impression was that of coolness, then a sensation of warmth and exhilaration, with a singular feeling of excitement in the chest. This was followed by a loss of consciousness, from which I in a short time awoke ; soon afterwards I entirely recovered from the effects of the ether.

I have frequently inhaled the vapor of sulphuric ether to relieve the irritation occasioned by breathing noxious gases. During the winter of 1841–42, and not long after the ex-

periment above described, I was preparing chlorine gas to be used in a lecture before the Massachusetts Charitable Mechanic Association, and, while collecting the chlorine in large glass bottles filled with boiling water and having their necks immersed in a pneumatic cistern, my assistant, who was holding a bottle, accidentally let it fall, and it broke while my face was quite near to it. I immediately inhaled a large volume of this gas, which nearly suffocated me, so that with great difficulty I got into the house.

As soon as I could get assistance, I sent for sulphuric ether and ammonia, and inhaled them alternately, hoping thus to neutralize the chlorine by the hydrogen of the ether, and the acid so formed by the ammonia. I received some relief for the time, but I was so much depressed, and felt such a weight upon my chest, that I feared I should not be able to give my lecture. I gave it, however, without much difficulty. Afterwards still suffering from the effects of the chlorine, I thought I would try the ether vapor again, and for a longer time. I went, therefore, into my office, which is connected with my house, and, taking the bottle of pure sulphuric ether from the laboratory, I soaked a folded cloth in it, squeezed it out slightly, and seating myself in a rocking chair, with my feet resting upon another chair, I commenced inhaling the ether from the cloth, which was placed over my mouth and nostrils, while my head was laid back against my chair, so that I was quite at ease in a fixed position. The effects of the inhalation were as before described, excepting that it made me cough at first. I was, therefore, led to believe, that the paralysis of the nerves of sensation would be so great, during

the continuance of the insensibility, that a surgical operation might be performed upon a patient under its influence, without giving him any pain; for the loss of consciousness was remarkable, perhaps resembling that of epilepsy more than any other kind of insensibility. I heard afterwards of other cases of this insensibility accidentally produced, and I became perfectly convinced that the inhalation of the ether would be safe, an opinion first formed from my own earlier experiments. I now felt prepared to recommend the trial of sulphuric ether vapor for the prevention of pain in surgical operations. The subsequent history of its application to that purpose is known to you from the evidence of others. I will add, that my interest in the respiration of gases, was first excited by Sir H. Davy's experiments, and that since I became acquainted with them, the subject has always seemed to me to deserve further investigation.

I am, with great regard, your friend,

CHARLES T. JACKSON.

The first of these is the fact that the United States is a young nation. It is only about 150 years old, and its history is still in the making. The second is the fact that the United States is a large nation. It covers a vast area of land, and its population is growing rapidly. The third is the fact that the United States is a diverse nation. It is made up of many different peoples, each with its own customs and traditions. The fourth is the fact that the United States is a powerful nation. It has a strong economy, a powerful military, and a leading position in the world. The fifth is the fact that the United States is a free nation. It is a land of liberty, where the rights of the individual are protected by the law. The sixth is the fact that the United States is a democratic nation. The people have the right to elect their representatives, and to have a say in the government. The seventh is the fact that the United States is a peaceful nation. It has never been at war with itself, and it has always been a friend to peace. The eighth is the fact that the United States is a progressive nation. It is always moving forward, and it is always improving itself. The ninth is the fact that the United States is a nation of opportunity. It is a land where anyone can succeed, if they are willing to work hard. The tenth is the fact that the United States is a nation of hope. It is a land where the future is bright, and where the possibilities are endless.

APPENDIX.

TESTIMONY.

I, Samuel A. Bemis, of Boston, in the County of Suffolk, and Commonwealth of Massachusetts, Dentist, depose and say, that on or about the twenty-ninth day of September, in the year eighteen hundred and forty-two, I was residing as a boarder at the Mt. Crawford House, at Harts Location, in the County of Coos, and State of New Hampshire. That, on or about the said twenty-ninth day of September, Dr. Charles T. Jackson, of Boston, being at that time engaged in a geological survey of New Hampshire, stopped at the said Mt. Crawford House.

Dr. Jackson had, for some years prior to the above date, been an acquaintance of mine. During some conversation that occurred between Dr. Jackson and myself at the time and place above mentioned, and in presence of several other gentlemen, among them Mr. William F. Channing, of Boston, then an assistant of Dr. Jackson, various remarks were made respecting my own profession; and the subject of pain and painful operations was introduced by Dr. Jackson, as being incident to its practice. Dr. Jackson then remarked that it was his wish to alleviate or destroy all sensation of pain and suffering during operations of a surgical nature, and asserted that this result would be secured by the introduction of a new mode of practice in such operations. After making

several observations upon the importance of some new treatment or agent which would prevent all consciousness of pain, Dr. Jackson said that, if I desired it, he would give or provide me with something which he knew would effect that object, and also proposed to me to introduce the same into my profession. I have no doubt whatever that the plan communicated to me at the time was the same in regard to the substance to be used, viz. sulphuric ether, and in all other respects, as he has since promulgated to the world. Dr. Jackson also remarked that he had been induced to try its effect upon himself, when suffering in consequence of some accident, and that he had been completely successful in its application. To all of which I replied as a reason why I should not be willing to introduce the use of this new agent into my own practice, that, in such operations as came under my particular care, there was seldom much suffering; and that I had more often found difficulty in impressing my patients with a belief that there was really no necessity for operations, than to persuade them to submit when operations were deemed necessary. In fact the principle of my practice was to save teeth, and to keep them in the head, rather than to extract them. I had no doubt at the time that Dr. Jackson regarded the successful application of the new agent, above referred to, to the purposes above mentioned, as not only practicable, but quite within the grasp of the scientific operator; and I expected to meet with an account of it at some future day through the scientific journals.

S. A. BEMIS.

Boston, May 20, 1847.

Sworn to before me,

JOSIAH QUINCY, JR.

Justice of the Peace.

I, William Francis Channing, of Boston, in the County of Suffolk, and Commonwealth of Massachusetts, Doctor of Medicine, affirm that in the month of March, in the year eighteen hundred and forty-six, I accidentally inhaled chlorine in the laboratory of Dr. Charles T. Jackson, of Boston. The effect was to produce spasms of the chest and distress of respiration, of such a character as to make me apprehend an immediately fatal result. I at once inhaled the vapor of ammonia and alcohol from the mouth of the vessels containing the same, for the purpose of neutralizing the chlorine, but found very slight relief. I also swallowed some brandy, which gave momentary, but no permanent relief. Dr. Jackson, who had then returned to his office, advised me to try the inhalation of sulphuric (hydric) ether, which he stated that he had himself used with success in an accident of the same kind; and he directed its application by means of a handkerchief. The inhalation of the ether produced an immediate suspension of the spasms, with entire relief from the distress. They recurred again after a time with less violence, but were subsequently entirely removed by occasional inhalations of ether; so that, in about one hour after the accident, I was enabled to walk from the laboratory without difficulty.

Several days after, inflammation of the lungs resulted from the irritation of the chlorine, connected with exposure to cold. In consequence of the great relief produced in my own case by the inhalation of ether, I recommended it shortly after my recovery, to be used as a remedy in ordinary cases of spasm of the chest.

I have heard Dr. Jackson speak on several occasions of the inhalation of sulphuric (hydric) ether, for producing in-

sensibility to pain during operations of a surgical nature. These conversations with Dr. Jackson took place, according to my recollection, certainly more than a year and a half ago ; and my own impression is very strong, that the earliest communication on this subject took place during the summer or autumn of 1842, while I was acting as assistant with Dr. Jackson on the geological survey of the State of New Hampshire.

WM. F. CHANNING.

Suffolk, ss.

Boston, May 12, 1847.

Affirmed by the said Wm. F. Channing, before me,

ELLIS GRAY LORING,

Justice of the Peace.

I, Joseph Peabody, of Salem, in the Commonwealth of Massachusetts, depose and say, that I have been for some time a student in chemistry in the laboratory of Dr. Charles T. Jackson, of Boston ; that, in the latter part of the month of February, 1846, Dr. Jackson related to me that he had discovered certain remarkable properties in sulphuric ether ; that, by freely inhaling it, a state of unconsciousness was produced, with insensibility to pain.

The circumstances under which this communication was made to me were as follows : — I was suffering from a severe toothache ; and, intending to have two teeth extracted, a fellow-student urged me to try the power of mesmerism to effect insensibility to pain, offering to attempt to produce the magnetic state. I consented, and he commenced the experiment.

While we were thus engaged, Dr. Jackson came into the office, and remarked that it was a loss of time and labor to attempt to repeat the experiments of the mesmerizers; for their insensibility was only a pretence. "If you want to have your teeth extracted without pain," said he, "I have mesmerism bottled up in the other room — in the shape of sulphuric ether." He then repeated to me minutely the effects which would be produced by the inhalation of sulphuric ether. I asked him where he got his information from. He said that he had tried it on himself; that, about four years before, he inhaled it freely with a view of ascertaining the effects of its vapor on the system, and was astonished to find it produced an entire loss of consciousness; that this state speedily passed away, without leaving any unpleasant effects. He said that subsequently, while engaged in preparing some chemical experiments, he accidentally got his lungs full of chlorine, which produced a sudden irritation and severe distress; that, hoping to obtain relief, he applied to sulphuric ether; that he breathed the vapor copiously — having poured the ether upon a cloth which was laid over his mouth. He soon became unconscious and perfectly free from pain, although the trouble in his lungs returned when the effects of ether had wholly passed off. He urged me to apply the ether when I wished to have my teeth extracted, assuring me of his confidence that I would escape the pain of the operation. He added that ether prepared expressly for the purpose, and freed from its alcohol, would ensure success. I immediately determined to make the trial; and, as I was obliged to return to Salem, I there commenced to re-distill some ether with sulphuric acid.

In the mean time I consulted several chemical and medical works (in a large scientific library to which I had access), in relation to the effects of sulphuric ether; and found that all the authorities stated that the action of ether upon the sys-

tem was injurious, and warned against its use. My father was also averse to my breathing it. I therefore concluded that the operation proposed would not be sufficiently serious to warrant me in using any application pronounced dangerous by high authorities. Upon my return to Dr. Jackson's laboratory, I stated to him the opinion of chemical and medical writers in relation to the use of ether. He said that he was aware of the opinions in the works upon the subject; but, notwithstanding their views, he was satisfied that he was right—that the application of ether would be perfectly harmless, and its effects would be what he had stated.

This was not the only occasion on which the subject of the effects of ether was introduced. He alluded to it in several subsequent conversations, and always with the same confidence, so that when I learned the final success of the application I was not at all surprised.

I returned to Dr. Jackson's laboratory about a week after he had communicated his discovery to Mr. Morton, and since that time have been constantly with him; and I can most positively state that not at any time has he shown the least want of confidence in the importance of his application, and not for a moment did he undervalue it, nor has he ceased to assert his claims as the sole discoverer.

JOSEPH PEABODY.

United States of America, State of Massachusetts.

*County of Suffolk, } ss.
City of Boston, }*

On this eleventh day of May, A.D. eighteen hundred and forty-seven, before me, came Joseph Peabody, and, being duly sworn, did depose and say as within written, and did sign the said within writing, as his deposition in and concerning the matters therein specified.

In witness whereof, I have hereunto set my hand and seal of office, on this said 11th of May, A.D. 1847.

JOHN P. BIGELOW, *Notary Public.*

I, George O. Barnes, of Plymouth, in the Commonwealth of Massachusetts, depose and say, that in the fall of 1846 I was a student in chemistry with Dr. Charles T. Jackson; that in the month of September I was at work in the back room of Dr. Jackson's laboratory when Mr. W. T. G. Morton passed through the room, as I supposed to go into the house which adjoins the laboratory. He soon returned, having in his hand an India rubber bag belonging to Dr. Jackson. As he went into the apparatus or glass room, I heard Dr. Jackson ask Morton what he wanted to do with the bag. He replied that he had a refractory patient who would not allow him to take out her tooth, and that he wished to act on her imagination so as to induce her to submit to the operation; that he meant to fill the bag with air, meaning, as I understood, atmospheric air, which would give it a formidable appearance. He then asked how he should go to work to distend the bag. "The lungs or a pair of bellows," said Dr. Jackson, "can do that." "But," continued Dr. Jackson, "your proposition, Morton, is very absurd; the patient will not be deceived in that way; you will produce no result, and will be denounced as an impostor."—"I don't know that," replied Morton: "I think with this bag under my arm, well blown up, that I could make her believe any thing." While saying this, he placed the bag under his arm, and, pressing the bag with his elbow several times, illustrated the manner in which he would operate. "If I could once get her mouth open," said Morton, "I would have her tooth out. Why," said he, "a man once bled to death by the mere force of imagination." As he was proceeding to give an account of this experiment, Dr. Jackson interrupted him, and said, "Pooh! you don't credit such a story as that, surely!" "I advise you to have nothing to do with this idea of using atmospheric air

to deceive your patients ; it will only injure you." Morton replied, "I don't care. I'll blow it up." Morton then left Dr. Jackson, and was going from the glass room, where the latter part of the conversation had been principally held, into the front room towards the street door, with the bag swinging in his hand, when Dr. Jackson followed him, took the bag from his hand, and threw it on the floor. There had been also some conversation concerning nitrous oxide, but not one word concerning sulphuric ether ; and Morton had not asked Dr. Jackson to suggest to him any thing to prevent pain during his operations of extracting teeth. Dr. Jackson then addressed him, and said, "Now, Morton, I can tell you something that will produce a real effect. Go to Mr. Burnitt's, the apothecary, and get some very strong sulphuric ether, the stronger the better ; spatter it on your handkerchief, put it to your patient's mouth, take care that it be well inhaled, and in a minute or two perfect insensibility will be produced." "Sulphuric ether !" said Morton, "what is that ? Is it a gas ? Have you got any of it ? Show it to me." Dr. Jackson went to the laboratory case, and took down the bottle of sulphuric ether, which Morton examined and smelt of as though he had never seen the article before, saying, it was "queer smelling stuff." "Are you sure," said Morton, "that this will do it ?" "Yes," replied Dr. Jackson, "I am sure." The rest of the Doctor's reply I did not hear, as I passed into the other room for some purpose, being engaged at the time in analytical work. Afterwards I heard Morton several times repeat, "Are you sure it will do it ?" He even asked Mr. McIntyre, another student in the laboratory, and myself, if we thought it would do it. "Won't it hurt the patient ?" said he. "No," replied Dr. Jackson, "it will not do any harm ; for I have tried it on myself." He then briefly described his own experiments and the effects, and said "that the patients, after breathing a dozen breaths, would fall back

in the chair insensible; and you can do with them as you please, without their knowing any thing about it, or feeling any pain; so that you can take out their teeth at your leisure." Dr. Jackson distinctly said; "It will not do the least injury, I assure you." Indeed, Dr. Jackson urged the matter very earnestly and with perfect confidence, taking on himself the whole responsibility. He urged Morton to try it on himself, saying that it was the only way to convince himself. "Shut yourself up," says he, "in your room, and breathe it as I have directed." At the same time, Dr. Jackson, taking a handkerchief and bottle in his hands, went through the movement of applying the ether to it, and, placing the handkerchief to his mouth, made several deep inhalations, saying, "This is the way you must take it." Morton then left, promising to try it immediately. After Morton left, the students in the laboratory conversed considerably about the proposed experiment; and, some one asking the question whether Morton would succeed, Dr. Jackson said confidently, "He will, if he follows my directions."

Either on the afternoon of the same day, or the next day, I am not positive which, Morton came to announce the success of his trial. He stated that he tried it on a patient with complete success; for, while he extracted a tooth, the person was insensible, and knew nothing about it. Dr. Jackson expressed no surprise, but appeared as if he had expected this result. Mr. Morton intended soon to perform another extraction. Dr. Jackson then said to him, "You must go to Dr. Warren, and obtain his permission to administer it at the Massachusetts General Hospital, and if possible it should be on a capital operation; for people will not believe in the insensibility to pain in case of a mere tooth, since it is very common for patients in an ordinary case to say that it did not hurt them when the twitch is very sudden, and the operation skilfully performed: this proof would not be regarded by the

public as satisfactory." Morton strongly objected at first to going to the Hospital — that every body could smell the ether, and it would not be kept secret, which it was Morton's object to do. He asked if something could not be put into it which would conceal the ether odor. Dr. Jackson replied, "Yes; some French essence, as the oil of Neroli, may answer in a measure, and a pleasant perfume will be left on the patient;" remarking laughingly, "The scent of the roses will hang round him still." After some argument, and Dr. Jackson's further insisting upon it, Morton promised to go to the Hospital.

In the course of this conversation, Morton repeatedly begged the Doctor to keep the matter a secret. "No!" answered Dr. Jackson, "I will have no secrets with my professional brethren. I intend to give Dr. Keep the same information which I have given to you;" and, in point of fact, every one who afterwards came to get information on the subject was at once told all about it.

Some time after this, when the experiments had proved successful at the Hospital and elsewhere, and while the patent was being negotiated, the right of using the ether having been assigned to Morton, Dr. Jackson urged him in my presence to present the free use of it to the Hospital, saying that they would not buy a patented article, and it ought to be given to the poor. Morton was very reluctant to do this, and asked if there were not some pay patients at the Hospital who could afford to remunerate him for administering the ether. This was argued a long time, and Morton finally said that he would do so.

A few days after, Morton called at the office, when Dr. Jackson was not in, with a glass bulb in his hand, having only two openings. He proposed to fasten an India rubber bag upon one of the openings to contain the sulphuric ether, a sponge to be placed in the bulb, and the patient to inhale the ether from the other opening; there being no aperture

for the admission of atmospheric air. His intention was, as he told us, that the patient should breathe the ether vapor pure, without admixture of atmospheric air. I told him of the indispensability of atmospheric air, knowing very well that it would be dangerous to breathe ether vapor without the common air being mixed with it. He was told, also, that the Ether would dissolve the India rubber. He then said that he would stop the opening with a cork, instead of the bag ; intending still to exclude the common air.

Some time after, I heard Dr. Jackson speak of Morton's being reckless. He had heard that Morton did not manage well in the administration of the ether. Dr. Jackson expressed his opinion that it ought to be in the hands of careful and skilful persons. In fact he was sorry that he had communicated his discovery to Morton, and that he had employed him to make those early experiments with the ether. He spoke strongly upon these points.

GEORGE O. BARNES.

Boston, May 21, 1847.

Sworn to before me,

JOSIAH QUINCY, JR.,

Justice of the Peace.

I, James McIntyre, of Bangor, in the State of Maine, depose and say, that in the month of September, 1846, I was a student in chemistry with Dr. Charles T. Jackson, of Boston. In the latter part of September, I was sitting in the front room or office of Dr. Jackson's laboratory, when Mr. W. T. G. Morton came in and asked for Dr. Jackson, and passed through the office into the house adjoining the laboratory.

In a short time Morton came into the back room with an India rubber bag in his hands, and passed through into the glass room. Dr. Jackson came in with him, or shortly afterwards. Dr. Jackson asked Morton what he wanted with the bag. He said he wished to blow up the bag, and act upon a patient's imagination by making her breathe from the bag. The precise words of Morton's answer I do not remember; but the purport of it was, that he wanted to extract some teeth from a lady who objected on account of the pain, and that he expected, by making her breathe from the bag, to believe that she would suffer no pain from the extraction of her teeth. In order to show the effect of imagination, he gave an account of an experiment upon two criminals, one of whom was bled to death; and the other, having his arm pricked and warm water poured upon it, died from the effect of the imagination. Dr. Jackson said that it was absurd, and never occurred. He told Morton that it would be useless to try that, as he could not act upon her imagination; and, if he failed, she would set him down as a humbug. There was then some conversation about the use of exhilarating gas, whether it was first mentioned by Dr. Jackson or Morton, I do not remember. Morton asked if he could not make it. Dr. Jackson told him that he could not succeed without apparatus and the assistance of some one who had some chemical knowledge; and that, if he undertook to make it, he would get nitric oxide instead of nitrous oxide. He asked Dr. Jackson if he could not prepare some for him; this Dr. Jackson declined to do on account of his business. Morton was then going away with the bag, and I have no doubt intended to use the bag by distending it with atmospheric air. As he was going, Dr. Jackson told him that he could tell him something that would make the patient insensible, and then he could do what he had a mind to with them. Morton asked what it was. Dr. Jackson then told him to go to Burnett's, and get some

pure sulphuric ether, and pour it on a handkerchief, and put it to the patient's mouth and let her inhale it. Morton asked what sulphuric ether was, what kind of looking stuff it was. I stayed in the front room while Morton and Dr. J. went to look at the ether. From Morton's question about the ether, I am satisfied that he knew nothing about its properties or nature. I heard Morton ask Dr. Jackson very particularly whether it would be safe to use it. Dr. Jackson assured him that it was perfectly safe, and alluded to the students at Cambridge having used it. Morton appeared to be afraid to use the ether, and asked him several times if it was safe. Dr. Jackson advised Morton to try it himself. Morton asked me if I would be willing to take it. I told him that I would. The whole conversation between Dr. Jackson and Morton I did not hear, as I was not all the time in the room with them. But I felt sure, from the conversation I had heard, that he came to the laboratory without any idea of using ether, or any thing else which would destroy sensibility to pain; that he knew nothing about its properties; that the effect which ether would produce was communicated to him by Dr. Jackson; and that he was induced to try it only by the repeated assurances of Dr. Jackson, that it would produce insensibility, and could be administered with safety. The next day after the above conversation, Morton came into the office, and told Dr. Jackson that the ether had worked nicely; that the patient suffered no pain.

During the time that I was in Dr. Jackson's laboratory, I never heard him express any doubt about the effect which ether would produce in causing insensibility to pain, but have heard him say that it ought to be administered with care, and by persons acquainted with the nature of it.

Signed,

JAMES MCINTYRE.

United States of America, State of Massachusetts,
County of Suffolk, } ss.
City of Boston, }

On this first day of April, A.D. 1847, before me, came James McIntyre, and, being duly sworn, did depose and say, as within written, and did sign the said within writing, as his deposition in and concerning the matter herein specified.

In witness whereof, I have hereunto set my hand and seal of office, on this said 1st of April, A.D. 1847.

Signed,

JOHN P. BIGELOW,
Notary Public.

I, N. C. Keep, of Boston, in the County of Suffolk, and Commonwealth of Massachusetts, Dental Surgeon, having been called upon by Dr. Charles T. Jackson, depose and say, that on the twenty-eighth day of November, in the year eighteen hundred and forty-six, I became associated in the business and practice of dentistry with Dr. W. T. G. Morton, of said Boston, which connection continued from that date until the thirty-first day of December following; during that period the vapor of ether was administered almost daily to our patients, for the purpose of producing insensibility to pain in dental operations. It was his practice during that time to administer the ether, without any adequate provision for the admission of atmospheric air, and whenever operations were performed by other persons in the office, and under his supervision, he directed its application in the same way; by consequence of which, many of the operations at that time were unsuccessful, and great distress and suffering were induced. All of *his* apparatus for the inhalation of ether was so constructed that it was a matter in my opinion of absolute uncertainty, whether the patient could receive sufficient atmospheric air to prevent asphyxia. Dr. Morton appeared to be in no sense aware of the importance of admitting atmospheric air. I believe that he was not at all well acquainted with the nature, properties, and safe and proper application of the vapor of ether, and he was certainly, in my opinion, reckless in its use, expressing the most perfect unconcern as to its effects upon the subjects of his practice, provided they were only made insensible.

Contrary to his clearly and unequivocally expressed wishes and opinion, it was my practice during the "thirty days" to make ample provision for the admission of atmospheric air, while administering the vapor of ether, and I advised the

assistants to make the same provision, but they, being influenced by his directions and known wishes, did not at all times follow my advice. I remonstrated with Dr. Morton in reference to his mode of practice in this respect, till I found it of no avail.

With my first acquaintance with the use of the vapor of ether, for the purposes above mentioned, I was perfectly satisfied of the expediency, if not absolute necessity, of admitting atmospheric air during its inhalation, and I immediately, and have ever since used it in that way and in no other way.

N. C. KEEP, M. D.

Commonwealth of Massachusetts.

Suffolk, ss.

Boston, May 24, 1847.

Then personally appeared the within named N. C. Keep, and made oath that the foregoing affidavit by him subscribed is true.

Before me,

JONA. CHAPMAN,

Justice of the Peace.

